

CLAIMS

What is claimed is:

1. A flying lead deployment apparatus with one reel assembly comprising:
 - a. a frame assembly;
 - 5 b. the reel assembly disposed in the frame assembly comprising flying lead, wherein the reel assembly is adapted to rotate to distribute the flying lead;
 - c. a first ROV-flying lead interface connected to the frame assembly and one end of the flying lead;
 - d. 10 a second ROV-flying lead interface connected to the reel assembly and the other end of the flying lead;
 - e. a drive assembly disposed in the frame assembly connected to the reel assembly, wherein the drive assembly comprises:
 - i. a counting gear adapted to count the number of times the reel assembly rotates;
 - 15 ii. an adjustable rack gear connected to the counting gear; and
 - iii. a locking mechanism connected to the adjustable rack gear and the reel assembly, wherein the locking mechanism is adapted to stop the reel assembly when the counting gear reaches a predetermined number; and
 - f. 20 a friction brake connected to the frame assembly and reel assembly, wherein the friction brake applies friction to the reel assembly in order to maintain constant tension on the flying lead.
2. The apparatus of claim 1, wherein the flying lead deployment apparatus is adapted to deploy up to 500 feet of flying lead.

3. The apparatus of claim 1, wherein the flying lead deployment apparatus further comprises a plurality of saddles attached to the frame assembly adapted to hold electrical flying leads.
- 5 4. The apparatus of claim 1, wherein the frame assembly comprises a base frame adapted to give support to the flying lead deployment apparatus.
5. The apparatus of claim 4, wherein the frame assembly further comprises a plurality of lifting eyes adapted to base frame adapted to give support to the flying lead deployment apparatus.
- 10 6. The apparatus of claim 4, wherein the frame assembly further comprises a plurality of folding wings connected to the base frame adapted to increase the area of the base frame when the apparatus is in use.
7. The apparatus of claim 1, wherein the reel assembly further comprises:
- a. a rotatable drum mounted on a shaft connected to the drive assembly;
 - b. flying lead wound around the rotatable drum;
 - 15 c. an indexing plate connected to the rotatable drum;
 - d. a lifting yoke connected to the indexing plate; and
 - e. a counterweight assembly mounted within the rotatable drum.
- 20 8. The apparatus of claim 1, wherein the first ROV-flying lead interface and the second ROV-flying lead interface are non-moveable J-plates adapted to allow an ROV to dock with the interface.
9. The system of claim 1, wherein the drive assembly further comprises an ROV-reel assembly interface adapted to allow an ROV to drive the reel assembly.
10. A flying lead deployment apparatus with two reel assemblies comprising:

- a. a frame assembly;
- b. a first reel assembly disposed in the frame assembly comprising first flying lead, wherein the reel assembly is adapted to rotate to distribute the first flying lead;
- c. a first ROV-flying lead interface connected to the frame assembly and one end of the first flying lead;
- d. a second ROV-flying lead interface connected to the reel assembly and the other end of the first flying end;
- e. a first drive assembly disposed in the frame assembly connected to the first reel assembly, wherein the first drive assembly comprises:
 - i. a first counting gear adapted to count the number of times the first reel assembly rotates;
 - ii. an first adjustable rack gear connected to the first counting gear; and
 - iii. a first locking mechanism connected to the first adjustable rack gear and the first reel assembly, wherein the first locking mechanism is adapted to stop the first reel assembly when the first counting gear reaches a first predetermined number; and
- f. a first friction brake connected to the frame assembly and the first reel assembly, wherein the first friction brake is adapted to apply friction to the first reel assembly in order to maintain constant tension on the first flying lead;
- g. a second reel assembly disposed in the frame assembly comprising second flying lead, wherein the second reel assembly is adapted to rotate to distribute the second flying lead, and wherein the second reel assembly rotates separate from the first reel assembly;
- h. a third ROV-flying lead interface connected to the frame assembly and one end of the second flying lead;

- i. a fourth ROV-flying lead interface connected to the second reel assembly and the other end of the second flying end;
- j. a second drive assembly disposed in the frame assembly connected to the second reel assembly, wherein the second drive assembly comprises:

5 i. a second counting gear adapted to count the number of times the second reel assembly rotates;

 ii. a second adjustable rack gear connected to the second counting gear; and

 iii. a second locking mechanism connected to the second adjustable rack gear and the second reel assembly, wherein the second locking mechanism is adapted to stop the second reel assembly when the second counting gear reaches a second predetermined number; and

10

 k. a second friction brake connected to the frame assembly and the second reel assembly, wherein the second friction brake is adapted to apply friction to the second reel assembly in order to maintain constant tension on the second flying lead.

15

11. The apparatus of claim 10, wherein the flying lead deployment apparatus is adapted to deploy up to 500 feet of flying lead.

12. The apparatus of claim 10, wherein the flying lead deployment apparatus further comprises a plurality of saddles attached to the frame assembly adapted to hold electrical flying leads.

20

13. The apparatus of claim 10, wherein the frame assembly comprises a base frame adapted to give support to the flying lead deployment apparatus.

14. The apparatus of claim 13, wherein the frame assembly further comprises a plurality of lifting eyes adapted to base frame adapted to give support to the flying lead deployment apparatus.

25

15. The apparatus of claim 13, wherein the frame assembly further comprises a plurality of folding wings connected to the base frame adapted to increase the area of the base frame when the apparatus is in use.
16. The apparatus of claim 10, wherein the reel assembly further comprises:
- 5 a. a rotatable drum mounted on a shaft connected to the drive assembly;
- b. flying lead wound around the rotatable drum;
- c. an indexing plate connected to the rotatable drum;
- d. a lifting yoke connected to the indexing plate; and
- e. a counterweight assembly mounted within the rotatable drum.
- 10 17. The apparatus of claim 10, wherein the first ROV-flying lead interface and the second ROV-flying lead interface are non-moveable J-plates adapted to allow an ROV to dock with the interface.
18. The system of claim 10, wherein the drive assembly further comprises an ROV-reel assembly interface adapted to allow an ROV to drive the reel assembly.
- 15 19. A method for using flying lead deployment apparatus with one reel assembly comprising the steps of:
- a. placing the flying lead deployment apparatus on a seabed, wherein the flying lead deployment apparatus comprises:
- i. a frame assembly;
- 20 ii. the reel assembly disposed in the frame assembly comprising flying lead, wherein the reel assembly is adapted to rotate to distribute the flying lead;
- iii. a first ROV-flying lead interface connected to the frame assembly and one end of the flying lead;

- iv. a second ROV-flying lead interface connected to the reel assembly and the other end of the flying end;
- v. a drive assembly disposed in the frame assembly connected to the reel assembly, wherein the drive assembly comprises:
 - 5 1. a counting gear adapted to count the number of times the reel assembly rotates;
 - 2. an adjustable rack gear connected to the counting gear; and
 - 3. a locking mechanism connected to the adjustable rack gear and the reel assembly adapted to stop the reel assembly; and
- 10 vi. a friction brake connected to the frame assembly and the reel assembly adapted to apply friction to maintain constant tension on the flying lead;
- b. using an ROV to connect with the first ROV-flying lead interface thereby attaching one end of the flying lead to the ROV;
- c. 15 pulling the flying lead from the reel assembly by the ROV moving away from the flying lead deployment apparatus, wherein the pulling of the flying lead from the reel assembly causes the reel assembly to rotate;
- d. applying friction to the reel assembly by the friction brake to maintain constant tension on the flying lead;
- e. 20 counting the number of rotations of the reel assembly by the counting gear until the number of rotations equals a preset number determined by the configuration of the adjustable rack gear;
- f. stopping the reel assembly when the preset number is reached using the locking mechanism;
- g. disconnecting the ROV from the one end of the flying lead;

- h. using the ROV to connect with the second ROV-flying lead interface thereby attaching the other end of the flying lead to the ROV; and
- i. removing the flying lead from the reel assembly.

20. The method of claim 19, further comprising the step of removing the flying lead
5 deployment apparatus from the seabed.